UNITED STATES PATENT AND TRADEMARK OFFICE

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ART UNIT	PAPER NUMBER
2628	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptoc@fenwick.com

	Application No.	Applicant(s)
Office Action Summary	10/826,973	NILES ET AL.
	Examiner	Art Unit	
	JASON M. REPKO	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>03 June 2010</u>.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>116,121-123,125-128,130-133 and 135-137</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>116, 121-123, 125-128, 130-133 and 135-137</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

3.   **Claims 116, 121-123, 125-128, 130-133 and 135-137 are rejected under 35 U.S.C.**

103(a) as being unpatentable over U.S. Patent No. 6,714,201 to Grinstein et al. in view of

Michiel van de Panne, "Control Techniques for Physically-Based Animation," 1994, Thesis

for the Department of Electrical and Computer Engineering University of Toronto [online].

[retrieved on 08/19-2009] Retrieved from the Internet: <URL:

http://www.dgp.utoronto.ca/~van/phd.ps.gz>, pp. 83-115 ("Panne").

4.   Regarding claim 116, Grinstein et al. disclose "in a computer implemented animation

system, a method for animating an object (*Fig. 2*), the method comprising:

receiving an input specifying a Random Motion behavior (*receiving the instructions*

written in C++ that invoke the OpenMotion API as described in section 6.2 at

column 15; motion behaviors are described in section 6.2.6, where it is disclosed

"A Behavior is an action that changes a motion's parameters" in lines 12-14 of

column 29),

the Random Motion behavior indicating how to change a value of a position

parameter of the object over time based on a partially random motion path

(*the random wandering behavior for the ball, where the velocity direction*

is randomized as described in section 6.2.8.5 in lines 38-52 of column 38:

" BehaviorVar wander=(velocityControl(randomDir(simTime( )));...

Motion Ball; Ball.behavior (wander,....") and

a speed at which the object moves along the motion path (*the wander parameter*

not only gives a direction but also determines that the "ball will have a

constant speed of 1 unit per second" as described in lines 37-38 of column

38), wherein the speed is specified by a drag parameter that shrinks or

enlarges the motion path as a whole without changing the shape of the

motion path (*the motion path can be shrunk or enlarged based on loss or*

gain of momentum using the parameters described at lines 17-23 of

column 36: " The parameters, gain and bias, affect the normal and

tangential components of a boundary interaction. These parameters can

be adjusted to simulate effects of gain or loss of momentum, for example

due to elasticity and friction."),

wherein a length of the motion path is specified by an amount parameter wherein

a higher value of the amount parameter results in a motion path being

longer (*lines 62-67 of column 50: "The variance range controls the variation of movement between the maximum and minimum displacement of a motion. For example, shake may have a max. distance of 10 units and a min. of 10. With the variance set at 0%, the object will move rhythmically from side to side 10 units left and right."*) and the object moving faster (*The variance range also increases the speed when used in combination with the Specialized Parameters described in 6.4.3.1.4, which correlate time with max/min displacement. For example, at lines 27-37 of column 51, Grinstein discusses setting "one swing per second, a 1-second swing to the left followed by a 1-second swing to the right", where the displacement of one swing is set by the variance. Increasing the maximum displacement, while keeping the time it takes to reach the maximum displacement constant, increases the speed.*);

wherein a shape of the motion path is determined by a random seed (*in view of paragraph [0528] of Applicant's PGPUB, simTime() is a random seed to velocity control disclosed at lines 38-52 of column 38 because, like Applicant's "random seed", the value itself is non-random but is a parameter to function that produces a random value*);

a noisiness parameter (*a parameter given to a Behavior object as described in lines 21-28 of column 29*) that determines a level of jaggedness along the motion path (*the wander parameter described in lines 38-40 of column 38 determines the direction as a dynamic function of "simTime", and thus,*

determines the characteristics such as level of jaggedness of the motion

path);

animating the object by changing the value of the position parameter of the object over

time according to the Random Motion behavior (*lines 46-53 of column 75:*

"...generating an animated view of the given model in which the given model is

rendered at each of a succession of time values with individual ones of the

model's nodes being shown in each successive rendering as having a position and

orientation determined as a function of the value for the rendering's

corresponding time value of the position and orientation values defined by the

node's associated motion..."; section 6.2.6 describes Behaviors which changing

the value of a parameter, for example position, over time); and

outputting the animated object (*the end result of applying motions and behaviors is an*

animated image of an object as shown in Fig. 3 and described in lines 17-20 of

column 53: "Since Mojo is a real-time motion editor, the model of the running

man is shown moving according to a set of motions that have been applied to the

individual nodes of its hierarchical model.").

5.   Grinstein et al. does not disclose "a frequency parameter, which determines a

crookedness of a motion path, wherein a higher value of the frequency parameter results in the

motion path having more turns, and wherein a lower value of the frequency parameter results in

the motion path being straighter." Grinstein's API does not provide an explicit programmatic

abstraction for a frequency parameter to control the claimed "crookedness" of the motion path of

Grinstein's animated ball.

6.   Regarding claim 116, Panne disclose a behavior (*parameterized controller at section 5.5,*

p. 94) indicating how to change a value of a position parameter of the object over time based on

a motion path (*Figure 5.11 at p. 99*) and

>   "a noisiness parameter" (*section 5.5 p. 94: " Using the parameterized controller requires*
>
>   *specifying the values of these three parameters over time, namely: the turn*
>
>   *frequency, turn sharpness, and general heading of the turns.")* "that determines a
>
>   level of jaggedness along the motion path" (*Track 3 in Figure 5.11 at p. 99 shows*
>
>   *a sharpness parameter controlling turn sharpness analogous to the recited*
>
>   *jaggedness.*);
>
>   "a frequency parameter" (*section 5.5, p. 94: " Using the parameterized controller*
>
>   *requires specifying the values of these three parameters over time, namely: the*
>
>   *turn frequency, turn sharpness, and general heading of the turns.")* "that
>
>   determines a crookedness of a motion path, wherein a higher value of the
>
>   frequency parameter results in the motion path having more turns, and wherein a
>
>   lower value of the frequency parameter results in the motion path being
>
>   straighter" (*Track 2 in Figure 5.11 at p. 99 shows decreasing the frequency*
>
>   *causes a decrease in the number of turns. For example, for lower values of*
>
>   *frequency, e.g. the second half of the track, there are approximately four turns;*
>
>   *and for higher values of frequency, e.g. the first half of the track, there are*
>
>   *approximately nine turns. See also Fig. 5.7 on p. 94*).

7.   At the time of the invention, it would have been obvious to a person of ordinary skill in

the art to incorporate Panne's parameterized control over frequency and noisiness in Grinstein's

animation system. The motivation for doing so would have been to simplify the creation and

improve the realism of complex turning motions in animation, as discussed by Panne's

introduction of Chapter 5 on page 81. While turning motions shown by Panne could possibly be

arrived at using some combination features of Grinstein's API, the Panne teaches a simpler more

intuitive way for the animator to specify these motions by using a single value that controls the

number of turns. For example, Grinstein's animated ball could be under the (partially random)

directional control given by randomDir and be oscillating back and forth along the motion path

(shown in Panne at Figure 5.9) according to an additional frequency parameter taught by Panne

(implemented as a parameter in Grinstein's API). Such a motion would be simpler for an

animator to create by incorporating the teachings of Panne in Grinstein's API. Therefore, it

would have been obvious to combine Grinstein et al. with Panne to obtain the invention specified

in claim 116.

8.   Claim 123 recites limitations similar to those of claim 116, but omits the amount,

noisiness and drag parameters. The limitations of claim 123 are met by the combination of

Grinstein et al. and Panne as shown in the rejection of claim 116 incorporated here by reference.

9.   Regarding claim 125, Grinstein et al. does not expressly disclose "the Random Motion

behavior can be further configured regarding a noisiness parameter, which determines a level of

jaggedness along the motion path, and wherein a higher value of the noisiness parameter results

in a motion path being more jagged."

10.   Regarding claim 125, Panne discloses "the Random Motion behavior can be further

configured regarding a noisiness parameter (*section 5.5 p. 94: " Using the parameterized*

controller requires specifying the values of these three parameters over time, namely: the turn

frequency, <u>turn sharpness</u>, and general heading of the turns."), which determines a level of jaggedness along the motion path, and wherein a higher value of the noisiness parameter results in a motion path being more jagged" (*Track 3 in Figure 5.11 at p. 99 shows a sharpness parameter controlling turn sharpness analogous to jaggedness. For example, the first half of the track, where sharpness is lower, the track is less jagged. The second half of the track, where sharpness is higher, is more jagged.*).

11.   At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate Panne's parameterized control of noisiness of pseudo-random turning motions in Grinstein's animation system. The motivation for doing so would have been to simplify the creation and improve the realism of complex turning motions in animation. For example, see Panne's discussion in the introduction of Chapter 5 on page 81. Therefore, it would have been obvious to combine Grinstein et al. with Panne to obtain the invention specified in claim 125.

12.   Regarding claim 126, Grinstein et al. disclose "the Random Motion behavior can be further configured regarding an amount parameter, which determines a length of the motion path, and wherein a higher value of the amount parameter results in the motion path being longer" (*lines 62-67 of column 50: "The variance range controls the variation of movement between the maximum and minimum displacement of a motion. For example, shake may have a max. distance of 10 units and a min. of 10. With the variance set at 0%, the object will move rhythmically from side to side 10 units left and right.")* and the object moving faster (*The variance range also increases the speed when used in combination with the Specialized Parameters described in 6.4.3.1.4, which correlate time with max/min displacement. For example, at lines 27-37 of*

column 51, Grinstein discusses setting "one swing per second, a 1-second swing to the left

followed by a 1-second swing to the right", where the displacement of one swing is set by the

variance. Increasing the maximum displacement, while keeping the time it takes to reach the

maximum displacement constant, increases the speed.). The proposed combination as well as the

motivation for combining the references presented in the rejection of the parent claim applies to

this claim and is incorporated herein by reference.

13.   At the time of the invention, it would have been obvious to a person of ordinary skill in

the art to incorporate Panne's parameterized control of length in Grinstein's animation system.

The motivation for doing so would have been to give the user a greater degree of control over the

final animation. For discussion of additional advantages of the parameterization, see Panne's

discussion in the introduction of Chapter 5 on page 81. Therefore, it would have been obvious to

combine Grinstein et al. with Panne to obtain the invention specified in claim 126.

14.   Regarding claim 127, Grinstein et al. disclose "the Random Motion behavior can be

further configured regarding a drag parameter, that shrinks or enlarges the motion path as a

whole without changing the shape of the motion path, which determines a speed at which the

object moves along the motion path (*the motion path can be shrunk or enlarged based on loss of*

momentum using the parameters described at lines 17-23 of column 36: " The parameters, gain

and bias, affect the normal and tangential components of a boundary interaction. These

parameters can be adjusted to simulate effects of gain or loss of momentum, for example due to

elasticity and friction."). The proposed combination as well as the motivation for combining the

references presented in the rejection of the parent claim applies to this claim and is incorporated

herein by reference.

15.   Claims 121, 128 and 130-132 recite limitations similar in scope to the limitations of

claims 116, 123 and 125-127, respectively, as a method on a computer program product. As

shown in the rejection, the Grinstein et al. and Panne combination disclose the limitations of

claims 116, 123 and 125-127, incorporated here by reference. Additionally, Grinstein et al.

disclose a computer program product for animating an object, the computer program product

comprising a computer-readable storage medium containing computer program code at lines 51-

56 of column 6: "It should be understood that the invention is meant to include apparatus,

methods, computer programming recorded on computer readable media, and propagated signals

capable of providing functionality of the type recited in each claim, even if there currently are

not claim covering each of these different class of inventions below." Thus, the computer

readable medium recited in claims 121, 128 and 130-132 are met by the combination according

to the mapping presented in the rejection of claims 116, 123 and 125-127 because the computer

readable medium stores the method disclosed in claims 121, 128 and 130-132. The proposed

combination as well as the motivation for combining the references presented in the rejection of

the claim 116 applies to this claim and is incorporated herein by reference.

16.   Claims 122, 133 and 135-137 recite limitations similar in scope to the limitations of

claims 116, 123, and 125-127, respectively, as a method on a "machine-readable storage

medium" within a system. As shown in the rejection, the Grinstein et al. and Panne combination

disclose the limitations of claims 116, 123, and 125-127. Additionally, Grinstein et al. disclose a

"A system for animating an object, the system comprising: a machine readable storage medium

storing computer program code for performing a method" at lines 51-56 of column 6: "It should

be understood that the invention is meant to include apparatus, methods, computer programming

recorded on computer readable media, and propagated signals capable of providing functionality

of the type recited in each claim, even if there currently are not claim covering each of these

different class of inventions below." Thus, the system recited in claims 122, 133 and 135-137 is

met by the combination according to the mapping presented in the rejection of claims 116, 123,

and 125-127. The proposed combination as well as the motivation for combining the references

presented in the rejection of the claim 116 applies to this claim and is incorporated herein by

reference.

Response to Arguments

17.   Applicant's arguments filed 03 June 2010 have been fully considered but they are not

persuasive.

18.   Regarding the claimed "drag" parameter, Grinstein discloses the motion path can be

shrunk or enlarged based on loss of momentum using the parameters described at lines 17-23 of

column 36. Applicant argues that Grinstein does not teach "treating a motion path as its own

entity and shrinking or enlarging the motion path as a whole." In response, it is submitted that

Grinstein's loss of momentum shrinks the motion path as a whole because the object gains or

loses momentum according to the gain or bias parameters. For example, Grinstein provides

examples, such as Swing, Shake and Wander in section 6.2.8, that use the boundary behaviors to

affect the motion path as a whole. Grinstein teaches gain and bias can be applied to the Swing

behavior (or any behavior as shown in col. 36, l. 27-28) to "scale the normal and tangential

components of the interaction" (Table 23, col. 35 and 36). Thus, the shape of the motion path

would not change (*e.g.* the object would still swing, bounce, shake, etc.), but the length of the

motion path would be reduced by the effects of friction or enlarged by the effects of elasticity

through the scaling of the tangential components of the interaction. Should applicant wish to

maintain this argument in future responses, applicant is encouraged to elaborate on how the

Grinstein does not treat "a motion path as its own entity" in view of the foregoing discussion of

gain and bias parameters. For these reasons, applicant's arguments are not persuasive.

19.   Regarding claim 123, applicant's argument that the proposed combination does not show

the claimed Random Motion behavior is not persuasive. First, applicant points out that the

claimed random motion behavior is not completely random. In response, it is noted that

Grinstein's randomDir function takes a random seed as a parameter (the simTime() function is

used in lines 38-52 of column 38). Therefore, like applicant's "random seed" (paragraph [0528]

of Applicant's PGPUB), the seed value itself is non-random but the seed is a parameter to

function that produces a random value based on that seed value. Second, applicant argues that

the combination proposes "moving an object in a random direction and then oscillate the object

in a non-random way." In response it is submitted that Grinstein's animation system is based on

combining behaviors to synthesize a final motion path. Panne's Figure 5.9 shows a motion path

based on a direction and an oscillation, and under the proposed combination, Grinstein's random

direction parameter is able to supply this direction. This type of synthesized motion behavior fits

Grinstein's paradigm. Therefore, a more accurate characterization would be to say that the

combination of Grinstein's random direction and Panne's frequency controlled oscillation

behavior creates a motion path, then the object is advanced along this motion path. It is this final

synthesized motion path that reads on the claimed "partially-random motion path." A non-

random oscillation is one component used to create this final motion path. For these reasons, the

proposed combination creates "a partially-random motion path and then moves the object along the motion path."

Conclusion

20.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON M. REPKO whose telephone number is (571)272-8624. The examiner can normally be reached on Monday through Friday 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on (571)272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason M Repko/
Primary Examiner, Art Unit 2628